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ABSTRACT

This report, the 10th in a series of the National Governor's Association (NGA) project "Facilitating Improvement of State Programs for Pregnant Women and Children," describes ongoing efforts of facilitating development of provider participation in Medicaid. The objective of the project is to identify where participation problems result in gaps in available services or insufficient access to care. The first part of the report presents the definition of physician participation, approaches to measuring physician participation, and participation by organized providers. The second part deals with using Medicaid files to examine participation in order to develop an effective monitoring system. The third part reviews two examples of adapting Medicaid data to monitor participation: linking provider and claims data in Texas and relying on claims files in Pennsylvania. The fourth part presents other alternatives for examining aspects of the provider participation such as monitoring private physician participation with a level of effort definition, monitoring new patients served by participating physicians, monitoring care rendered by organized providers, and monitoring changes in the availability of care in a geographic area. The appendix includes information on physician participation in Medicaid from recent literature. Contains 16 references. (AP)

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MONITORING MEDICAID PROVIDER PARTICIPATION AND ACCESS TO CARE

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State Policy Reports

Health Policy Studies

Strategies For Improving State Perinatal And Child Health Programs

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State Policy Reports

Health Policy Studies

Strategies For Improving State Perinatal And Child Health Programs

by Deborah Lewis-Idema

Health Policy Studies
Center for Policy Research
National Governors' Association

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Executive Summary

Ensuring adequate provider participation in public programs for low-income women and children has been an ongoing concern for state and federal officials. As Medicaid has expanded to cover more pregnant women and more children, states have used numerous approaches to recruit and retain providers willing to serve the growing number of recipients. Yet most states have had limited ability to monitor the rates of provider participation in their programs to determine which strategies have been the most effective.

The ultimate objective of a system monitoring provider participation in Medicaid is to identify where participation problems result in gaps in available services and/or insufficient access to care. Once these problems have been identified, state agencies can implement strategies to address recipient needs. Key to developing such a system is determining how participation will be defined, which data are required, and what capacity currently exists to monitor participation and access.

Defining Provider Participation

Traditional participation measures focus on counting the number of physicians serving Medicaid patients. Analyses often lead to recommendations aimed at increasing the number of individual participating doctors, based on the assumption that higher participation rates lead to improved access. Yet even if the number of physicians willing to serve Medicaid patients increases, the availability of care may not actually improve if average Medicaid caseloads fall.

An *a priori* assumption that physician participation and access to care are one and the same may be erroneous. Nor can it be assumed that increasing participation automatically leads to improved availability of services. Physician participation should be redefined to incorporate measures of the extent of services these physicians provide to Medicaid recipients. Such a level of effort definition offers a more accurate measure of changes in access generated by physician participation in the Medicaid program than does a simple accounting of doctors with a Medicaid billing number.

With expanded Medicaid eligibility for pregnant women and children, other providers of care such as community health centers and local health departments have become more directly involved as Medicaid providers of maternal and child health services and primary care. There is growing evidence that the services offered by these organized providers are critical components of care for the Medicaid population.

If the objective is to monitor the availability of care for Medicaid recipients, this system's participation also must be considered. Traditional measurement approaches should be expanded to incorporate the capacity of organized providers of ambulatory care. Focusing solely on private physician participation provides an incomplete picture of the availability of care, and does not reflect the changing nature of the Medicaid delivery system.

Using Medicaid Data

Medicaid data provide a basis for developing a useful monitoring system. Provider files include identifying information for each physician billing Medicaid. Claims files record each service for which a bill has been submitted and contain identifiers for the physician submitting the claim. Information from these files is linked in a state's Medicaid Management Information System (MMIS) and can be enhanced with information from state licensure files, vital records, and hospital discharge data.

Past efforts to monitor physician participation have been frustrated by the flaws in available Medicaid data. Moreover, analysts attempting to document the nature and extent of services rendered by health departments, community health centers, and other organized ambulatory care providers have encountered similar, if not more profound, data difficulties. Current trends suggest that the situation is improving. More and more states are assigning unique identifiers in order to link individual physicians across their practice sites. The implementation of recent federal legislation regarding Medicaid reimbursement of certain health centers, coupled with the growth of Medicaid billing among health departments, may facilitate states' ability to identify services rendered through these providers.

There will be continuing limitations to the use of Medicaid data, though these barriers should not deter states from developing a monitoring system to track provider participation. It is a worthy exercise, and one that calls for creative adaptation of data defined and collected for billing purposes.

Texas and Pennsylvania are two states that illustrate how information collected in Medicaid provider files and claims systems may prove useful in monitoring provider participation. A study of Texas indicates the potential of using several provider identifiers linked to claims information in order to generate hard copy reports on participation. A review of Pennsylvania reveals how a state can use claim files together with on-line data and special programming requests to provide information on physicians' participation. Both states have the capacity to identify individual physicians, link information across practice sites, and tabulate data on recipients served and specific services.

Building on Existing Capacity

The cost of developing and programming Medicaid data is a major constraint. Rather than creating new analytic data systems, states should explore further the potential of using existing data. Some systems currently are producing information on physicians, recipients, and indicators of participation, such as the number of recipients per provider (Pennsylvania) or the number of prenatal care patients (Texas). Producing monitoring information, such as the distribution of physicians by number of recipients served, involves altering or adding to the parameters for these existing systems.

State Medicaid systems vary greatly, and thus a monitoring approach that is feasible in one state may be unrealistic in another. Four options are suggested that would provide useful and meaningful information on provider participation:

- monitoring private physician participation with a level of effort definition;

- monitoring new patients served by participating physicians;
- monitoring care rendered by organized providers; and
- monitoring changes in the availability of care in a geographic area.

These approaches represent building blocks of a strategy for monitoring access and participation. They can be used separately or in combination, depending upon a state's policy concerns and data availability. Notwithstanding the difficulties in implementation, the most important concern is to begin the process and to expand the way in which participation issues are examined so that analyses address the real issue—ensuring adequate access to care for Medicaid recipients.

1. Measuring Physician Participation

For years physician participation in Medicaid has been measured by counting the number of physicians serving Medicaid patients. The assumption underlying this approach is that higher participation rates lead to improved access.

Research has shown, however, that participation is a complex phenomenon that can be measured along several dimensions. Calculating the number or percentage of physicians serving at least one Medicaid patient generally results in a high participation rate. At the same time, analysis of average Medicaid caseloads of physicians may reveal low access for recipients, particularly if the participating physicians limit the number of Medicaid patients they serve.

This report begins with the premise that increased physician participation is not an end in itself, but rather a vehicle for improving availability and access to care. Traditional participation measures focus on the physician, and therefore analyses lead to recommendations aimed at increasing the number of individual participating doctors. An alternative approach would focus more directly on recipient access to services as the outcome of participation. It would incorporate measures of the availability of private physician care into the definition of physician participation. It also would look at participation by private physicians within the context of the total health care delivery system available to Medicaid recipients.

This chapter provides the conceptual framework for developing an approach to monitoring participation that includes measurement of access to care. It presents an overview of the recent literature on measuring physician participation, discusses the implications of alternative measures of participation, and explores issues in documenting access to services from other providers such as community health centers and health departments.

Physician Participation Defined

Extensive research on the factors influencing physician participation in Medicaid was conducted during the 1970s and early 1980s. This body of research—reviewed in detail in the 1988 National Governors' Association report, *Increasing Provider Participation*—examined the relationship between Medicaid fee levels and participation rates.[1] Among other findings, these studies suggested that the level of payment was a significant variable in a physician's initial decision to participate in the Medicaid program. However, once that physician decided to participate, the payment rate was a less influential factor in determining the extent of service to Medicaid patients.

Factors influencing physician participation have changed over time. Medicaid policies, which were important determinants of participation during the 1970s, were less significant in the studies conducted during the early 1980s. In the more recent research community characteristics such as physician-to-population ratios took on greater importance. The appendix includes a summary of the most recent literature on physician participation and the factors influencing physician participation in Medicaid.

Policy initiatives to promote physician participation, such as provisions in the Omnibus Budget Reconciliation Act of 1989 (OBRA-89) requiring states to demonstrate that Medicaid recipients have access to care to the same extent as the general population,[2] assume a direct relationship between the percentage of private physicians participating in Medicaid and the availability of care for recipients. The higher the participation rate, the greater access will be afforded.

The literature suggests that while this equation of participation and access is intuitively logical, it also is overly simplistic. The proportion of all physicians willing to serve Medicaid patients may increase, but the availability of care may not actually improve if average Medicaid caseloads fall. The precise definition of participation used for measurement is key to documenting trends. Limiting the count to those physicians serving more than the occasional Medicaid recipients yields a much lower participation rate.

Small area studies suggest an even more complicated relationship between participation and access. Virtually all physicians may participate in a community—and they may be serving large numbers of Medicaid patients—but access still will be limited if there are only a few physicians practicing in that community. The apparent trend of physicians limiting the size of their Medicaid practice, reported by the American Academy of Pediatrics, reinforces the conclusion that a simple count of physicians provides an inadequate picture of the availability of care.

To state policymakers familiar with access problems in particular localities, these findings probably are not startling. However, they do suggest the need for alternative approaches that more accurately measure access to private physician care. Moreover, the findings of Long et al. point to the need to examine the role of physician participation within the context of the entire ambulatory service delivery system.[3]

Approaches to Measuring Physician Participation

There are three approaches to defining physician participation in Medicaid, and each yields different measures of the participation rate.

- *Dichotomous Definition (participate/does not participate)*—A physician is deemed a participating provider if he or she has a Medicaid provider number and serves at least one patient during the time in question. This is the definition used, for example, by Mitchell for her analysis of changes in the participation rate between 1977-78 and 1984-85.[4] It also is the one most frequently used by states in reporting to the Health Care Financing Administration (HCFA) under the OBRA-89 requirements. States using this definition frequently refer to "active providers" to distinguish these

physicians from those who are enrolled Medicaid providers but who have not served any patients during the relevant period.

- *Level of Effort Definition*—This definition reflects the extent to which participating providers serve Medicaid recipients. The principal approach defines a threshold level of participation in order to exclude physicians who serve only an occasional Medicaid recipient from the calculation. The Fossett, Perloff et al. studies of Cook County, Illinois,[5] and the Hadley studies of participation during the 1970s[6] used this approach to identify physicians who might be called "serious participants" in Medicaid. Another approach is to categorize physicians by the size of their Medicaid practice, a method used by Mitchell[7] to identify physicians with large Medicaid practices (defined as those with more than 30 percent Medicaid patients).

- *Restricted/Unrestricted Definition*—This concept attempts to identify physicians who make services broadly available to the Medicaid population. The American Academy of Pediatrics established a hierarchy of participation from "basic," which refers to physicians who provide service to some Medicaid recipients to "unrestricted," which refers to physicians who accept Medicaid and non-Medicaid patients equally.[8] The Texas study of physician participation used caseloads as a proxy measure, postulating that physicians serving more than fifty Medicaid patients over four months had an "unrestricted practice."[9]

Use of these definitions obviously will produce different information on physician participation. Physicians must have made the *a priori* decision to participate in Medicaid before the level of effort or restricted/unrestricted practice definitions can apply. Consequently, the dichotomous definition will always yield the highest number and percentage of participating Medicaid physicians. However, unless a measure of effort is included, the dichotomous definition of participation may provide a faulty picture of Medicaid recipients' access to care.

A hypothetical example illustrates the effects of using two different definitions of participation. A community with 100 office-based physicians, each of whom has an average caseload of 100 patients, was constructed (see table). The number of Medicaid patients served was calculated for two years (1977-78 and 1984-85) using the data on participation reported by Mitchell from the National Opinion Research Center survey.[10]

- In 1977-78, seventy-seven of the 100 physicians participated in Medicaid, each serving an average of twelve patients. About 935 Medicaid recipients received private physician services.

- Using the dichotomous definition participation rates increased so that by 1984-85, about eighty-four physicians served Medicaid patients. Assuming no change in the average number of patients served by each physician, the number of recipients receiving services would have increased to about 1,010 (8 percent).

- Combining changes in the number of participating physicians with changes in average caseloads (measuring level of effort) yields a different picture. In this instance average caseloads declined from about 12 Medicaid recipients to 9.5. Despite the increase in physicians participating in Medicaid, the number of recipients receiving services fell from 935 to 793 (a 15 percent decrease).

Change in Medicaid Recipients Receiving Services from Private Physicians, by Definition of Participation (community with 100 physicians each serving 100 patients)

	1977-78	*1984-85*	
	Baseline	*Dichotomous Definition*	*Level of Effort Definition*
Number of Participating Physicians	77	84	84.0
Average Number of Medicaid Recipients Served	12	12	9.5
Total Recipients Served	935	1,010	793.0

SOURCE: Based on National Opinion Research Center data.

This illustration leads to one conclusion. The dichotomous definition of participation, which merely counts physicians billing Medicaid for services, is an inadequate measure of the role of private physicians in rendering care. A definition that incorporates level of effort is essential to monitoring access to care.

Participation by Organized Providers

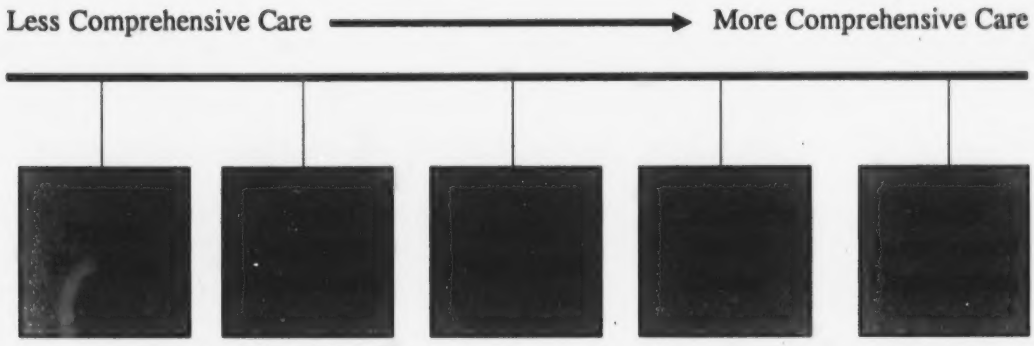
The ambulatory care delivery system is a continuum, with the solo practice private physician at one end and structured health maintenance organizations (HMOs) at the other. Between these ends are various physician group practice and clinic arrangements (see Figure 1).

While considerable attention and research has focused on private physicians, practicing individually or in groups, much less attention has been paid to Medicaid participation by the organized providers falling in the middle of the ambulatory care continuum.[11] This is partly due to the fact that a significant number of these clinics are—by definition or by statute—intended to serve the low-income (or Medicaid) population, and therefore there has been less concern about their participation.

Another factor, which cannot be ignored, is that an organized provider traditionally has been viewed as a less desirable provider than the private physician. The three dynamics contributing to this perception are:

- the desire to bring the poor into mainstream medicine;
- the episodic nature of "clinic" care; and
- the higher cost of services rendered in hospital outpatient departments.

Figure 1
Level of Care Provided by the Ambulatory Delivery System



The organized system is not monolithic, and while these concerns apply to some providers, they do not apply to all. Health care delivery has changed since Medicaid was enacted in 1965. Today many Americans of all incomes receive care through organized systems, and managed care is becoming mainstream medicine. Medicaid programs increasingly are turning to managed systems of care as a means of controlling cost while providing access.

With expanded Medicaid eligibility for pregnant women and children, health departments have become more directly involved as Medicaid providers of maternal and child health services and primary care, and have extended their services to provide more comprehensive programs. As documented in the NGA reports, *Coordinating Prenatal Care* and *Enhancing the Scope of Prenatal Services*, Medicaid and Maternal and Child Health program officials have worked collaboratively to develop special initiatives that extend many support services to women at risk of adverse birth outcomes. Health departments today provide a broad range of medical and nonmedical services, including care coordination, risk assessment, health education, psychosocial counseling, and home visiting to pregnant women.[12]

Equally, if not more important, is the growing evidence that the broader services frequently offered by organized providers are critical components of care for the Medicaid population. A recent study reported in *Health Affairs* found that participants in organized prenatal care programs initiated care earlier and averaged 2.5 more visits than did Medicaid recipients receiving care elsewhere.[13]

Studies in Kentucky, North Carolina, South Carolina, and Tennessee have found that Medicaid-eligible pregnant women who used health department services had better birth outcomes than did those using private physicians.[14] The most frequently cited explanation for these findings is that health departments provide a range of social and supportive services (e.g., care management, nutrition counseling, and health education) not available through the usual private practice setting.

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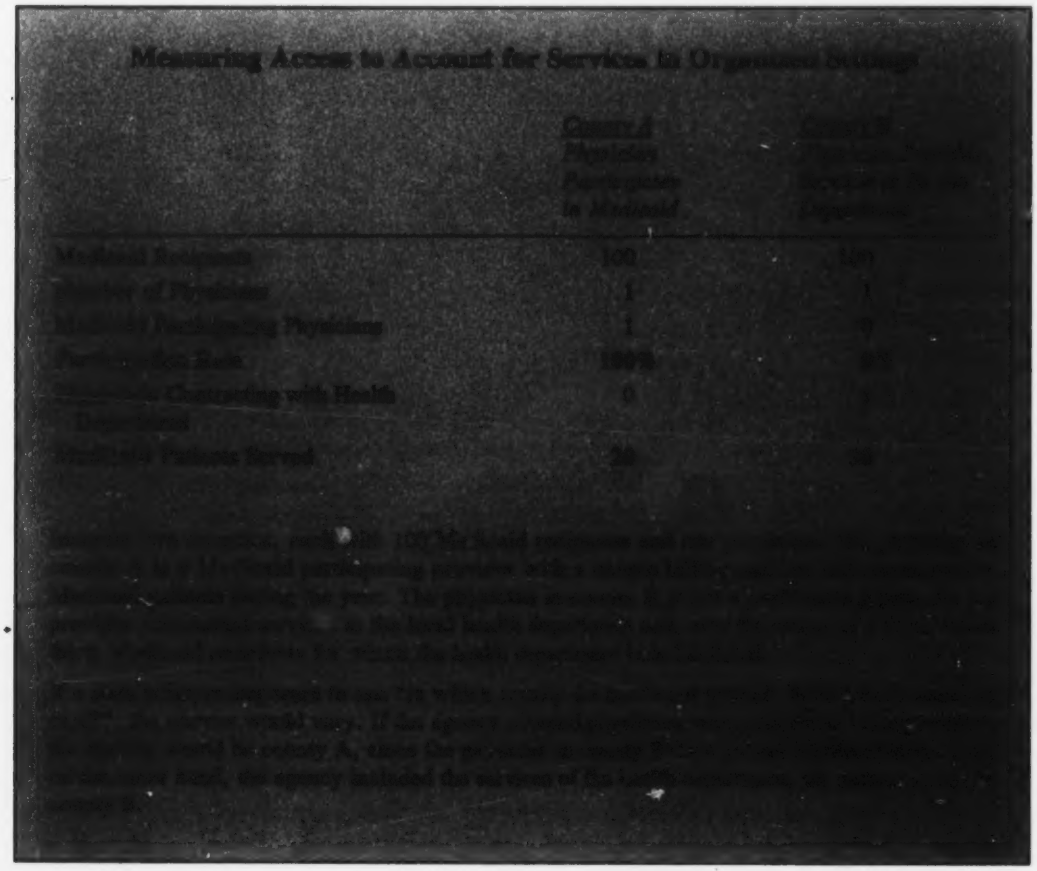
If the objective is to monitor the availability of care for Medicaid recipients, this organized system should be included. The effect of measuring only private physician services is illustrated by a simple example (see box on Measuring Access to Account for Services in Organized Settings).

Since the extent and nature of organized programs differ among states, decisions on their inclusion are also likely to vary. If, however, a system is to document access, all providers should be included. This requires answers to three questions.

- *Which types of programs should be included?* All organized programs do not provide comprehensive maternity or pediatric services. Should all programs that bill Medicaid be included? What about the family planning clinic that provides only limited services, or the health department that does not render care to sick children?
- *How should hospital outpatient services be treated?* While hospitals are significant providers of care, they generally have been regarded as less desirable settings because of the episodic nature of their services and their higher costs. While hospital emergency rooms fit into this category, other hospital-based services may not. Some hospitals run comprehensive maternity care programs, while others are developing extensive relationships with community providers of prenatal and pediatric care. Should all hospital-



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based services be included because they are part of total delivery system capacity? Should only particular programs be included?

- *When is an organized program treated as a distinct entity?* Many organized programs have arrangements with private physicians. For instance, rural clinics may have arrangements with physicians under which the clinic provides screening and case management services, and the physician sees (and bills for) medical services independently. In these circumstances how can the organized program be distinguished from the private physician? Similar problems can be encountered with managed care systems. While some (e.g., the staff model health maintenance organization) can be easily distinguished from private physicians, differences are less clear in a preferred provider organization (PPO) or network arrangement.

Conclusions

If data on provider participation are to yield information that is useful for policy development and program implementation, the concept and therefore the measurement of participation needs to be redefined. Given the nature and history of Medicaid, an *a priori* assumption that physician participation and access to care are synonymous may be erroneous. Nor can it be assumed that increasing participation automatically leads to improved availability of services.

The proposed conceptual approach incorporates two elements.

- *A redefinition of physician participation to incorporate measures of the extent of service provided to Medicaid recipients.* Such a level of effort definition offers a more accurate measure of changes in access generated by physician participation in the Medicaid program than does a simple accounting of physicians with a Medicaid billing number.
- *An expansion of traditional measurement approaches to incorporate the capacity of organized providers of ambulatory care.* Focusing solely on private physician participation provides an incomplete picture of the availability of care, and does not reflect the changing nature of the Medicaid delivery system.

Underlying these two elements is a simple thesis: Since provider participation is intended to improve recipient access to care, monitoring should focus on access measures rather than on counts of private physicians. In translating this thesis into a workable monitoring system, policymakers must consider the availability and limitations of current program data. These implementation questions are the subject of the next chapter.

2. Developing an Effective Monitoring System

Since Medicaid's enactment in 1965 the study of physician participation issues has been limited by the inadequacies of available data. Medicaid data systems are principally structured to meet the needs of the claims payment process and therefore do not always lend themselves to use in analysis. Other data, which are needed to provide a baseline or denominator for comparative purposes, have not always been readily available to Medicaid agencies.

These data constraints are especially problematic in light of new state reporting requirements. OBRA-89 requires states to demonstrate to the Secretary of Health and Human Services that obstetrical and pediatric services are available to Medicaid recipients at least to the extent that such services are available to the general population. This "equal access" provision is keyed to state payments and requires states to annually submit Medicaid reimbursement rates for obstetrical and pediatric services to the Health Care Financing Administration beginning April 1, 1990. States also are asked to submit any additional data that can verify compliance with at least one of three standards.

- At least 50 percent participation by obstetricians and pediatricians on an appropriate substate geographic basis (or the same rate as Blue Cross/Blue Shield participation).
- Fee-for-service payment rates for all obstetrical and pediatric services that are at least 90 percent of the average payment by private insurers in the state.
- Other appropriate means documented by the state to demonstrate equal access.

Unfortunately, most analysts agree that adherence to the HCFA standards does not provide sufficient evidence that recipients have access to care. Furthermore, many states' systems are not equipped to provide the data that are required by these standards. For this reason states continue to struggle for answers to questions of physician participation and how participation affects access to care.

One of the assumptions underlying this report, however, is that a monitoring system should be built upon readily available data. In practice this implies a reliance upon Medicaid data files together with non-Medicaid data sources such as state licensure files and hospital discharge data. This chapter summarizes the issues that have historically impeded analyses of Medicaid participation based on these readily available data sets.

Using Medicaid Files to Examine Physician Participation

Information on physicians appears in both the Medicaid provider and claims files. Provider files include identifying information for each physician billing Medicaid. Claims files record each service for which a bill has been submitted and contain identifiers for the physician submitting the claim. Information from these files is linked in the Surveillance and Utilization Review Subsystem of a state's MMIS.

Medicaid Provider Files. The provider files include physician name and address. They also may include information on physician specialty, the nature of a physician's practice (solo or group), the number of practice sites, and other identifying information. More important, the provider files include the provider (or billing) numbers that are commonly used to identify participating providers and to link providers with claims data.

Past efforts to use Medicaid data sometimes have relied on the provider files to document participation. The 1988 NGA report cited four major impediments to using data from provider files.

- *Nature of Physician Identifiers.* Some physicians have multiple Medicaid billing numbers, using one for their private practice and another for services they render in clinics or hospitals. In other cases groups of physicians have a single provider number under which they submit claims. The most extreme example is a large multispecialty group practice or an entire hospital outpatient department submitting Medicaid claims under a single provider number.

- *Outdated Information.* In some states provider files have not been purged to eliminate physicians who have left the state, retired, or died. Increasingly, states are addressing this problem by matching provider and claims files to identify "active" Medicaid providers (i.e., those submitting at least one claim for services).

- *Insufficient Information on Physician Specialty.* The manner of determining physician specialty varies. In one state the provision of specialty information may be voluntary and self-designating, while in another the specialty may be limited to that for which the provider is board-eligible or board-certified. In general the availability of specialty information has improved in recent years. Only sixteen states were able to provide data on the number of participating obstetricians-gynecologists in response to NGA's 1988 survey on physician participation.[15] Today all states report on the number of obstetric and pediatric providers to HCFA.

- *Out-of-State Physicians.* Since care seeking patterns do not conform to state boundaries, virtually all state programs pay for care from out-of-state providers. Some states can easily disaggregate out-of-state providers, while others cannot. The inability to disaggregate such information frustrates efforts to calculate physician/population ratios or the proportion of physicians serving Medicaid recipients, since the numerators and denominators are inconsistent.

For years the inadequacies of provider identifiers have been cited as a major restriction on using Medicaid data to examine provider participation. In the 1988 NGA study several states reported more Medicaid participating physicians than the American Medical Association reported were practicing in these states. These apparent discrepancies generally have been attributed to the difficulties of assessing the extent to which providers are billing under more than one number.

The Omnibus Budget Reconciliation Act of 1990 (OBRA-90) requires the Secretary of Health and Human Services to create "a system for a unique identifier for each physician."[16] While it was expected that the requirement would necessitate changes in state systems, few changes have occurred. HCFA guidance in the *State Medicaid Manual* notes that states with approved Medicaid Management Information Systems must have a unique numbering system and be able to identify separately the services delivered by each individual physician practicing in a group.[17] Accordingly, the OBRA-90 requirements have been implemented by adopting each state's current identifiers as the "system."

Conversations with HCFA staff and a review of the requirements for the Medicaid Management Information System confirm the perception that unique identifiers for physicians within a group practice have always been required. The standards for the Surveillance and Utilization Review Subsystem (SURS) require the capacity to profile both group practices and "each individual within the group practice."[18]

It is somewhat unclear whether identifiers that permit the linking of services of an individual physician practicing at multiple sites are required. HCFA staff indicated in informal conversations that SURS also should be capable of combining information on these physicians into a single record. The review of Texas and Pennsylvania data in Chapter 3 shows this to be the case. However, North Carolina previously reported that efforts to examine participation were impeded by this problem for several years.[19] Moreover, the Texas Research League has noted difficulties in calculating unduplicated physician counts because of multiple physician numbers.[20]

In short it is unclear what information is available through the provider unique identifiers currently used in existing Medicaid data and to what extent this information limits analyses of physician participation. The perceived problem may stem from states' experiences during the 1970s and early 1980s, when approved Medicaid Management Information Systems were just coming on line and analysts were attempting to work with more limited data files and data sources. Or, as with other Medicaid data, it may well be that the ability to use existing identifiers for analytic purposes varies significantly among the states and can only be fully understood by actually working with the data files.

Medicaid Claims Files. Medicaid claims files, which comprise a record of all services billed to Medicaid in a given period, include provider and recipient identifiers and individual service codes. They may include type of provider (e.g., group practice), place of service (e.g., health department), date of service, date of payment, and various recipient characteristics.

The use of claims files obviates any outstanding concerns about outdated information or inadequate data on specialty. It is possible, for example, to pull all claims for a defined group of obstetrical or pediatric services, separate and distinguish the

physician identifiers across claims, and arrive at a count of physicians rendering these services to Medicaid recipients. As previously noted, states are now using the claims files to determine the number of active Medicaid physicians.

Claims files provide the data for implementing level of effort definitions (e.g., applying a threshold number of recipients served). However, two major constraints in using these files should be noted.

- *Global Fee Reimbursement.* Under these arrangements state Medicaid programs pay a single lump sum for maternity services. Payment may be made on a periodic basis (e.g., after each trimester of pregnancy), or after the woman has delivered. Some states include all maternity services (e.g., prenatal, delivery, and postpartum care) in the global fee, while others may pay for the delivery separately.

  In some cases it may be difficult to identify the physicians who are involved in care. This might occur in situations where two physicians practicing together establish an arrangement for one physician to bill for the global fee, even though both physicians are rendering care. If reimbursement rules include the delivery in the global fee, the prenatal care physician may not be identifiable from claims data. These constraints would understate participation by private physicians.

- *Recipient Numbers.* Individuals can go on and off the Medicaid rolls. Unless a recipient is issued a unique number that remains constant over time, the claims files covering an entire year may include services to one individual under two different identifiers. Unless these records are flagged through a cross-match with eligibility files, the number of recipients served by a physician would be overcounted. This is less of a problem in obstetrical care, because today most pregnant women remain eligible throughout pregnancy and the postpartum period, and eligibility due to pregnancy is time limited. The problem is more significant relative to identifying child recipients.

Surveillance and Utilization Review Subsystem. All Medicaid Management Information Systems are required to include a SURS component. SURS uses data drawn from both provider and claims files in order to produce profiles of participating providers (e.g., hospitals, nursing homes, and physicians) and of the services they render.

As with other components of the MMIS, SURS is not standardized. HCFA establishes general requirements for the output of a SURS system, but the specifications and actual data runs produced by the system are determined by the state. One SURS requirement—the capability to profile individual physicians within a group practice—was previously discussed. Other federal requirements include:

- the capability to develop physician profiles that include specific information on the use of services such as prescribed drugs;
- the flexibility to present detail on claims by provider; and
- the capacity to produce information that supports investigation of misuse of the program.

The primary objectives of SURS are to monitor quality and to identify potential instances of fraud and abuse. The system is used to produce areawide profiles of physicians and can identify physicians with extremely high Medicaid billings. A SURS summary report for a group of physicians (e.g., all family practitioners in a locality) may include:

- average number of visits;
- average monthly Medicaid billings (or charges);
- average amount paid by Medicaid over a year;
- amounts for ancillary services billed to Medicaid; and
- volumes of specific services (e.g., number of tonsillectomies) per physician.

By comparing information on individual physicians with data for their reference group in the area, Medicaid programs use SURS data to identify high-volume Medicaid practices and potential situations of fraud and abuse. While the SURS data programs are structured to identify "outlier" situations, in theory they should be able to produce more complete distributions of physician services. For example, instead of producing reports that identify physicians with an extremely high number of Medicaid visits, it should be possible to produce a report showing the distribution of all physicians by number of visits rendered to Medicaid recipients.

Using Medicaid Files to Examine Organized Provider Participation

Analysts attempting to document the nature and extent of services rendered by health departments, community health centers, and other organized ambulatory care providers will encounter data difficulties similar to those found by analysts examining private physician participation. In this instance, however, data availability is further complicated by state policies regarding reimbursement and assignment of bills. A 1989 report found that states used four different practices for assigning provider numbers to organized clinics.[21]

- *Unique Clinic Identifiers.* In these states clinics bill Medicaid under a distinct set of provider identifiers. This approach allows the differentiation of organized programs from other types of providers. The use of unique clinic identifiers has been found most frequently in those states that cover "clinic services" as an optional Medicaid benefit.
- *Physician Group Practice Identifiers.* In these states clinic identifiers are drawn from the series used for private physician group practices. Groups and individual providers can be distinguished, but organized programs cannot be easily distinguished from private physician groups.
- *Individual Physician Identifiers, with the Clinic as Payee.* In these states bills are submitted under an individual physician's identifier, but checks are written directly to the clinic. Distinguishing the organized program depends upon whether the state's claims files maintain information on the payee.
- *Individual Physician Identifiers with No Clinic Identification.* In these situations the clinic is not identified at all; bills are submitted and payments are

made under the physician's number. This method is used relatively infrequently by states.

States do not necessarily use only one method for assigning identifiers. For example, health department clinics might bill under a "clinic" identifier, while nonprofit centers might bill as a "physician group practice." A state may cover the services of a federally funded community health center as "clinic services" billed under the clinic identifier, while obstetric and pediatric services provided by similar community centers not receiving federal grants are billed as "physician care."

Implementation of the recently enacted federally qualified health center (FQHC) legislation may make it easier to identify one group of providers. The law requires state Medicaid programs to pay federally funded community and migrant health centers and similarly qualified clinics 100 percent of the costs reasonably associated with the provision of services to Medicaid patients. This program is still being implemented, and states are adopting many different payment methodologies. Nevertheless, anecdotal information indicates that many states are assigning unique identifiers to facilities eligible for cost-based reimbursement under the new law. While these new codes will permit disaggregation of patients served by FQHCs, they will not necessarily identify health departments or other organized centers not qualifying for such reimbursement.

Still other problems exist in examining the organized system.

- *Identifying Providers with Multiple Sites.* A number of community-based programs have several sites—sometimes located in different counties—whose services are billed under a single Medicaid number. Unless the state requires identification of the site of service, it may be impossible to allocate patients among those sites, resulting in a misrepresentation of the extent of services on a county level. Some states allow all health department services to be billed under a single provider number assigned to the state health department. Separately identifying local departments from the claims or provider data may be impossible in these situations.

- *Identifying Nonbilling Providers and Services.* While Medicaid data systems obviously are limited to those who submit claims, a significant amount of service is rendered to Medicaid recipients outside of that structure. In the past local health departments frequently did not receive reimbursement for prenatal services and, while reimbursement is becoming more widespread, there still are a number that submit few bills. Another problem affecting pediatric services is that some health departments provide services totally supported by grants or general funds. For example, immunizations for Medicaid-eligible children may not be billed to Medicaid, while private physicians would bill for such services.

- *Identifying Services of HMOs, PPOs, and Other Prepaid Plans.* Since prepaid providers do not bill unique services, the Medicaid claims system does not always include disaggregated data on these entities. Monitoring the availability of care to obstetric or pediatric patients may require matching claims with eligibility data in order to determine the number of pregnant women and children served.[22]

Other Issues and Data Sources

A major methodological problem in examining the relationship between physician participation and access is establishing a standard for comparison. A universe or denominator is needed in order to determine rates of participation and access to care. Since Medicaid files only include data on Medicaid services, the comparative information must be obtained elsewhere.

For physician data, the most common solution is to use data from state licensure files or from the American Medical Association's physician files. State reports on participation, submitted in response to OBRA-89 requirements, tend to use the number of licensed physicians (of appropriate specialty) as the denominator. This information may suffer from two problems.

- *Status of Practice.* Licensed physicians may be retired or semi-retired. These physicians typically would not carry a full patient load, yet the data may not always permit them to be separated from other fully practicing physicians.
- *Specialty Data.* Information on specialty is needed in order to identify the number of obstetric and pediatric providers practicing in the state or locality. While the American Medical Association (AMA) reports on physician specialty, all states do not require this information for licensure. Where it is required, specialty may be self-reported and may not be limited to that for which the physician is board-certified or board-qualified.

An analytic issue in using licensure data involves deciding which specialties—and therefore which physicians—to include. While general and family practitioners typically are included in the universe of obstetric and pediatric care providers, some internists also render these services, particularly to older children or in areas with severe physician shortages. Moreover, a number of practicing obstetricians-gynecologists have stopped providing obstetric services, or have severely limited the size of their practice. An accurate count of physicians in the community would include only those actively providing care to pregnant women and/or children, but this detailed information generally is available only through special physician surveys.

State medical societies maintain information on their members and are a source of special survey data that can assist states in determining physician participation. Over the past five years a number of state societies have conducted special studies on malpractice and issues of indigent care. Information on the total size of physician practice, or on whether physicians are restricting the size of their Medicaid practice, is only available from special surveys. For Medicaid agencies, the utility of conducting such special surveys will be determined by the importance of these questions, the likely response rates, and available resources.

While Medicaid data are the primary source for measuring provider participation, there are a number of other data sources that can be used to enhance the information available from these data sets. Hospital discharge data and vital records are the two most frequently used for analyzing obstetrical care issues. Some studies have determined the proportion of Medicaid deliveries, on a hospital-specific basis, by linking Medicaid data with information on total deliveries available from hospital discharge data. Comparison of prenatal visits reported on the birth certificate with

Medicaid-reimbursed care permits analyses of the role of Medicaid in financing prenatal care for subgroups in the population. These data sources have not been assessed for this project because the focus is on developing monitoring systems for tracking participation, rather than on developing databases for research or evaluation purposes.

Conclusions

Past efforts to monitor physician participation have been frustrated by the flaws in available data. Current trends suggest that the situation is improving. The most persistent problem has been inadequate physician identifiers that permit linking individual physicians across their practice sites. Where this problem persists, it is relatively easy to correct. A number of states already have such identifiers in their "performing" or "rendering" physician numbers. The implementation of FQHC, coupled with the growth of Medicaid billing among health departments, should enhance states' ability to identify services rendered through these providers.

There are, however, continuing limitations to the use of Medicaid data. The issues raised in this chapter might lead some to conclude that developing a monitoring system for provider participation is, at best, an exercise in futility. This conclusion is unwarranted. A useful monitoring system calls for creative adaptation of data defined and collected for billing purposes. Any such system necessarily must be restricted in scope, and users will need to understand the limitations of the data in order to interpret results accurately. The next chapter explores the potential of adapting existing data by examining two state systems in greater depth.

3. Adapting Medicaid Data to Monitor Participation

The underlying premise of this report is that despite some limitations, Medicaid data provide a basis for developing a useful monitoring system. Short of actually creating such a system and analyzing the results, an examination of data specifications offers the best way to ascertain the validity of this premise. This review provides a more accurate picture of the issues that need to be addressed when developing monitoring approaches for state agency use.

There is no prototypical state Medicaid data system. The federal Medicaid Management Information System requirements outline standards and guidelines for system structure, output, and capabilities, but states have implemented these standards and guidelines in diverse ways. States have different ways of classifying providers and of recording the basis of recipient eligibility. States use both standardized billing codes and procedure codes that are unique to the services they cover. One state Medicaid director has noted that the systems are set up to pay bills and to generate reports of interest to the state legislature. The interests of the legislature clearly will vary among states.

The two states selected for study—Pennsylvania and Texas—are not necessarily typical of all state systems, nor is this the reason they were chosen. These states were chosen because they have large Medicaid programs that operate different types of claims processing systems. Pennsylvania has an in-house operation. Texas, under its health insuring arrangement, uses an outside agent. The examination involved a desk review of data specifications and conversations with state agency staff.

The two states have the capability of producing similar information, though they do so in different ways. A study of Texas illustrates the potential of using several provider identifiers linked to claims information in order to generate hard copy reports on physicians. A review of Pennsylvania reveals how a state can use claims files together with on-line data and special programming requests. Both states have the capacity to identify individual physicians, link information across practice sites, and tabulate data on recipients served and specific services.

Linking Provider and Claims Data in Texas

Texas operates its Medicaid program through a health insuring organization, the National Heritage Insurance Company (NHIC). NHIC maintains complete provider, claims, and client records. Extracts from the client history files, maintained at the Texas Department of Human Services, include a rolling twelve months of information on each service rendered to each client.

Key Characteristics of Texas Data. Texas uses several provider identifiers.

- *Medicaid Billing Number.* Different numeric series are used for billing by individual physicians and groups. Physician numbers begin with "P000," while group numbers begin with the prefix "Z." Texas recently adopted a separate identifier for community and migrant health centers qualifying for reimbursement under the FQHC legislation. These begin with an "FQ" prefix.

  Physicians also may have a separate billing number for specific services. For example, Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) providers have special billing numbers, enabling disaggregation of EPSDT services for reporting purposes. FQHCs bill all services, except pharmacy, under the "FQ" number; pharmaceutical services are billed separately under the vendor drug program.

- *Performing (or Rendering) Physician Number.* Each physician who practices with, and bills through, a group also is assigned a performing (or rendering) physician number (commonly called a "P08" number because it begins with these three characters). Physicians have a different P08 number for each group with whom they practice. The P08 numbers permit identification of the individual physician within the group and the site where the service was provided.

- *Physician License Number.* The third identifier is the physician's medical license number, which is used to link claims submitted by a physician across all practice locations and/or groups under whom he or she bills.

The Texas provider files include other information.

- Provider type, distinguished by four categories: individual practice, group practice, medical doctors, and osteopaths.

- Address of each practice location associated with the P08 rendering physician number.

- Physician specialty.

Client history files, derived from the basic claims system maintained at NHIC, include basic recipient characteristics and services information. These files provide the raw data for determining volumes of services rendered by particular providers, and include relevant data elements.

- Basic client demographics (e.g., birth date and sex). Client eligibility status is not included in these files because eligibility can change frequently. Information on client eligibility can be obtained from the master Medicaid eligibility file maintained by the Department of Human Services.

- Category or type of service and date of service.

- Procedure codes, using the standard Current Procedural Terminology (CPT)-4/HCFA Common Procedural Coding System (HCPCS) and locally defined codes.

- Physician identifiers (including billing numbers for individuals and groups and rendering physician P08 numbers).

Routine Reports. The Texas Medicaid program produces several standard reports on Medicaid providers. These reports combine identifying information on individual providers with data on services derived from claims files. The reports currently include some specific maternity and pediatric services (e.g., prenatal visits and EPSDT); others presumably could be included if desired.

The *Provider List* includes name, address, type of provider, and specialty. The report is produced by name, Medicaid billing number, and physician license number.

The *Active Medicaid Provider Report* lists each individual physician who has submitted a Medicaid claim in the preceding three months. The report includes both physicians who bill individually and those who bill through a group. The latter are separately identified through use of the performing physician (P08) number. Reports are generated by specialty, county, and region of the state. In addition to physician name and address, the report includes basic service data (e.g., total number of clients and number of new clients). This report is designed particularly to provide information local caseworkers use in referring Medicaid recipients to physicians. As a result it lists physicians by practice location, and physicians with multiple locations appear more than one time on the list.

The *Provider Summary Profile* is a SURS report comparing claims data on each physician with the average for the regional peer group. For example, claims and services of an individual general and family practitioner are compared with the average for similar physicians in the same multicounty region. Both quarterly and annual summary reports are produced. The profile includes both billing and utilization data. In addition to raw numbers (e.g., amount billed and number of recipients), the report includes comparative measures (e.g., percentage of comprehensive visits for new patients and percentage of high-risk antepartum visits). Similar data are produced for all physicians in a multicounty region.

Relying on Claims Files in Pennsylvania

Pennsylvania operates the entire Medicaid program directly, with all claims processed by the state. Two claims files were reviewed (the Adjudicated Claims History and the Recipient History Profile) as well as the provider files.

Key Characteristics of Pennsylvania Data. Pennsylvania's provider files include seven different records for each provider. There are a number of key provider identifiers.

- *Medicaid Billing Number (MAID).* Each physician has only one Medicaid billing number, which is unique across all locations where he or she practices. A group will have a separate billing number, and the two are cross-referenced (e.g., group records include the MAID number of each associated provider and the MAID includes information on the group(s) with which the provider is affiliated.) According to personnel in Pennsylvania, this unique identifier has been used at least since the early 1980s. Even if a

physician leaves the program and later returns, he or she is assigned the same identifier.

- *Physician License Number.* This number is maintained in a separate record.
- *Additional Identifiers.* Pennsylvania maintains information on the physician's Social Security Number, Internal Revenue Service Number, and Medicare/Blue Shield Number. The new uniform Medicare identifiers (UPIN) will be included when they are finalized.

Still other information is included in the provider files.

- *Status with Medicaid* (e.g., active, inactive, or closed). Pennsylvania defines an active physician as one who has submitted at least twelve claims per year (or an average of one per month). Provider status is reviewed regularly and updating action is taken as needed.
- *Service Address.* Providers practicing at multiple locations can have several address records. Physicians practicing at more than one site may have multiple addresses but only one Medicaid billing number.
- *Specialty.* Specialty information includes primary specialty and board eligibility.
- *Practice Type.* This code lists whether providers practice individually, as a member of a group, and/or under both types of arrangements.

The *Adjudicated Claims History* file includes detail on claims, recipients, and provider characteristics. It includes a number of data elements, by category.

- *Recipient Information.*
  - Demographic characteristics—the file includes the age, race, and gender of recipients.
  - Recipient's program status—these codes identify highly discrete eligibility categories. "Pregnant women and children" and "presumptive eligibility" are separate program status categories.
  - Recipient identifiers—the file contains three recipient identifiers. The "Recipient ID Number" is the identifier in use at the time of the claim. The "Recipient Original Number" is the identification number that was in effect when the recipient's first claim was approved. This number is the unique recipient identifier in the system. Finally, the "Recipient's CIS Number" is an identifier that in theory should not change over the recipient's lifetime.
- *Provider Information for Each Claim.*
  - Physician medical assistance number.
  - Group medical assistance number (if the claim is to be paid to a group).
  - Provider type.
  - Provider license number.
  - Type of outpatient provider—in addition to physicians, these codes identify discrete providers (e.g., independent clinics, rural health clinics,

midwives, and public schools). Capitated programs also are identified separately.

- *Utilization Information for Each Claim.*
  - Procedure, using HCPCS procedure codes plus unique codes defined by the state.
  - Place of service (e.g., office or independent clinic).
  - Reason recipient sought service based on a selected list of reasons such as EPSDT and pregnancy.

The *Recipient History Profile*, which is extracted from the Adjudicated Claims files, has detailed information on utilization, by recipient identifier. However, these files do not have the level of detail on recipient characteristics found in the Adjudicated Claims files. The profile includes several key data elements.

- Physician and Provider identifiers—medical assistance numbers for the individual and group, and license number of the physician.
- Services, by service code (HCPCS).
- Place of service (e.g., office or independent clinic).
- Reason recipient sought service based on a selected list of reasons such as EPSDT and pregnancy.

Routine Reports. Pennsylvania uses the claims and provider files to produce a variety of information, some in hard copy reports and some on line. The *Provider Participation Analysis* examines changes in the number of participating providers and recipients served on a monthly basis, comparing these data with previous monthly, six-month, and yearly data. This report is produced for each provider type and type of service combination. Measures of participation include changes in the number of eligible recipients per participant and in the percentage of enrolled providers who actually are active in the program.

Additional hard copy reports can be produced.

- Monthly lists of participating providers, alphabetically, and by medical assistance number, provider type, and specialty.
- Weekly activity reports on new providers and changes in provider status (e.g., shifting from active to inactive) by type of provider. On this report all physicians would be shown as a single provider type.

SURS profiles of physician practice include detailed data on recipients, claims, and services rendered. *Management Summary Reports*, which are produced on a quarterly basis, include totals, averages, and upper and lower limits. Routine reports summarize data for all physicians in an area (e.g., Philadelphia). Detailed reports on individual physicians who exceed a certain threshold (e.g., are "excepted") are generated for further review. The standard threshold for exception reviews is two standard deviations from the mean. A standard *Provider Exception Report* includes the number of Medicaid recipients served and the average number of visits per recipient.

In addition to routine hard copy reports, Pennsylvania has the capacity to produce detailed information on physicians upon request. Information can be requested on any participating physician, including detail on claims submitted, and by recipient and services ordered (e.g., prescriptions by recipient identifier). Moreover, each county welfare department has a terminal connected to the provider files at the central Medicaid offices. Caseworkers can obtain information on participating physicians, by specialty and area (e.g., zip code), to help recipients needing information on how to locate a physician.

Implications for Monitoring

The systems in both Texas and Pennsylvania have the capability of generating provider information at highly discrete levels. Both have unique provider identifiers but are structured to separate provider data in different ways.

- For physicians in groups, Texas assigns a different "rendering physician" (or P08) number for each practice location. These numbers, coupled with individual physician billing numbers, can be used to generate information on physicians by site (or county). Billings and rendering physician numbers can be linked with the physician license number to arrive at an unduplicated count of participating physicians and their services.[23]
- Pennsylvania assigns only one physician identifier (the MAID number), which is used for all claims whether these are paid to the individual physician or to a group. Information on service address, which is contained in the provider file, can be used to disaggregate site-specific information.

Both systems also can produce counts of recipients served by individual physicians, as well as detailed information on specific services. Texas currently generates client-based information on the Active Medicaid Provider Report. Pennsylvania produces recipient data for all physicians and can generate individual reports upon request. Standard reports do not provide distributions of physicians by number of Medicaid recipients. Such distributions are technically possible, and Texas has done them in the past.

The two states illustrate different approaches to generating data on participation. The Texas standard reports show how a state can link provider and claims data through use of the physician license number. Because Texas has multiple "rendering physician" numbers, the data set offers flexibility for structuring a monitoring system. Information can be disaggregated at the lowest geographic level (e.g., practice site or zip code), and can be reaggregated to provide information on the individual physician or for a larger geographic area (e.g., county or region). For example, by using only those variables currently included in routine reports, it is possible to undertake other studies.

- Classify participating physicians by numbers of patients served—a level of effort definition of participation—by county or other geographic area.
- Aggregate physicians and patients served by zip code or county of practice, and compute the percentage of Medicaid recipients receiving private physician services. The present Active Provider Profile would permit these comparisons for both prenatal and delivery services.

Pennsylvania illustrates the potential of using a single data source—the claims files. Since physicians have a single Medicaid billing number, which appears on every claim, the number of individual participating practitioners, by levels of effort, could be computed directly from claims data. Equally important, the claims files include detailed information on client characteristics and services received. These data would allow monitoring of discrete but important issues regarding participation. For example, with the claims files, a number of analyses are possible.

- Determine the relative importance of organized providers and capitated programs in particular localities, by comparing numbers of patients served with those receiving care from private physicians.
- Categorize physicians according to the number of individual Medicaid patients to whom they provided care.
- Examine access to services for defined high-priority groups of Medicaid-eligibles. For instance, the Pennsylvania system would permit identification of those physicians who provide care to newly eligible pregnant women and children, or to women enrolled under presumptive eligibility, by county of service.

Conclusions

Despite their differences, the data systems in Texas and Pennsylvania offer the potential for developing useful provider monitoring systems. In both cases the critical element is unique provider identifiers that allow analysts to both separate individual physicians from their groups and to link multiple billing numbers of an individual practitioner. With such identifiers it is possible to link provider and claims files (as in Texas), or to monitor participation through use of the claims files (as can be done in Pennsylvania).

The cost of developing and programming Medicaid data is a major constraint. This review suggests that rather than creating new analytic files, the potential of using SURS should be explored further. These systems currently are producing information on physicians, recipients, and indicators of participation, such as the number of recipients per provider (Pennsylvania) or the number of prenatal care patients (Texas). Producing monitoring information, such as the distribution of physicians by number of recipients served, involves altering or adding to the parameters for these existing systems.

The ultimate test of any proposal is implementation. Analysts and system developers who work with state data invariably find that the actual file structures are more complicated, and the detailed data issues more complex, than had been anticipated. This review is not meant to downplay the difficulties in developing a monitoring system. It does indicate that the information needed for such a system already is available and accessible.

While defining a research agenda on physician participation is beyond the scope of this study, it is worth noting that both states currently maintain data, which if appropriately tabulated and analyzed, might begin to answer a number of questions related to aspects of the physician participation issue. For example, it has been suggested that physician attitudes toward Medicaid, along with their prior experience

with the program, are determinants of the participation decision. While the current research on this question is based on physician responses to survey questionnaires, Medicaid files allow parallel analyses based on claims experience. For instance, the Texas data could be used to explore questions such as the following.

- Is group practice more conducive to Medicaid participation and how do physician groups organize their Medicaid practice? (Comparison of a physician's Medicaid practice, by size of group and within a group.)
- Do physicians with multiple practice locations treat one site as their "Medicaid practice"? (Comparison of volume of services and recipients by practice location using P08 numbers.)

Similarly, the Pennsylvania claims data could be used to examine the relationship between recipient characteristics and provider participation in order to address other policy issues.

- Are providers more willing to serve the poverty-related, newly eligible pregnant women and children who are not public assistance recipients? (Comparison of provider caseloads by recipient program status.)
- Are there significant differences in the characteristics of patients served by clinics and private physicians? (Comparison of recipient characteristics by type of provider.)

4. Monitoring Participation and Access

The ultimate objective of a monitoring system is to identify where participation problems result in gaps in available services and/or insufficient access to care so that agencies can develop strategies to address recipient needs. In addition, approaches should meet a key operational criterion. They should be based on existing Medicaid data sets, tabulations, or revisions to existing Medicaid data. Analyses that rely on large non-Medicaid data sets are important for evaluation and research but are difficult to use for ongoing monitoring. Moreover, regularly conducted special surveys of physicians can be prohibitively expensive.

The review of Texas and Pennsylvania reconfirmed the fact that state Medicaid systems vary greatly and that an approach that is feasible in one state may be unrealistic in another. For this reason comprehensive approaches for monitoring participation and access were not developed. Instead this chapter outlines some discrete alternatives for examining aspects of the issue of provider participation, with illustrations based on the Texas and Pennsylvania data.

- *Monitoring Private Physician Participation with a Level of Effort Definition.* This approach establishes a threshold level of service, thereby providing a more accurate description of Medicaid recipients' access to private care. It permits analysis of the distribution of patients among physicians and examination of policies that might increase caseloads of physicians with low levels of involvement in the program.
- *Monitoring New Patients Served by Participating Physicians.* This approach outlines a proxy measure for "unrestricted Medicaid practice," using data available to Medicaid programs. As noted in Chapter 1, one definition of participation documents the extent to which individual physicians accept Medicaid patients on the same basis as other patients. Since Medicaid programs do not have easy access to data on total physician caseloads, monitoring service to new patients is suggested as an alternative.
- *Monitoring Care Rendered by Organized Providers.* This approach addresses the unique problems of including organized providers in a monitoring effort.
- *Monitoring Changes in the Availability of Care in a Geographic Area.* This approach focuses on the outcome of provider participation—access to care. Because it does not track the number of providers directly, it does not require the use of provider identifiers or data files.

These four approaches can be used separately or in combination, depending upon a state's policy concerns and data availability. They represent building blocks of a

strategy for monitoring access and participation. The first establishes the baseline of private physician care as does the second, while the third adds organized providers to give a more complete picture of service availability. The fourth looks at the entire delivery system in a community and the extent to which it meets the needs of Medicaid recipients.

Monitoring Physician Participation with a Level of Effort Definition

This approach implements the level of effort definition of participation discussed throughout this report (see Figure 2). Development of the approach depends upon the availability of a unique provider identifier, such as the physician license number in Texas or the Medicaid billing number in Pennsylvania.

The level of effort definition of provider participation postulates that physicians who serve occasional Medicaid recipients should not be included among the body of participating providers. Therefore, a key question in implementing this approach is defining "occasional." The literature on physician participation provides some guidance.

- Hadley defined "participant" as one serving at least ten Medicaid recipients per quarter.[24]
- Fossett, Perloff et al. included only those physicians who billed for services to at least twenty Medicaid patients during a year.[25]

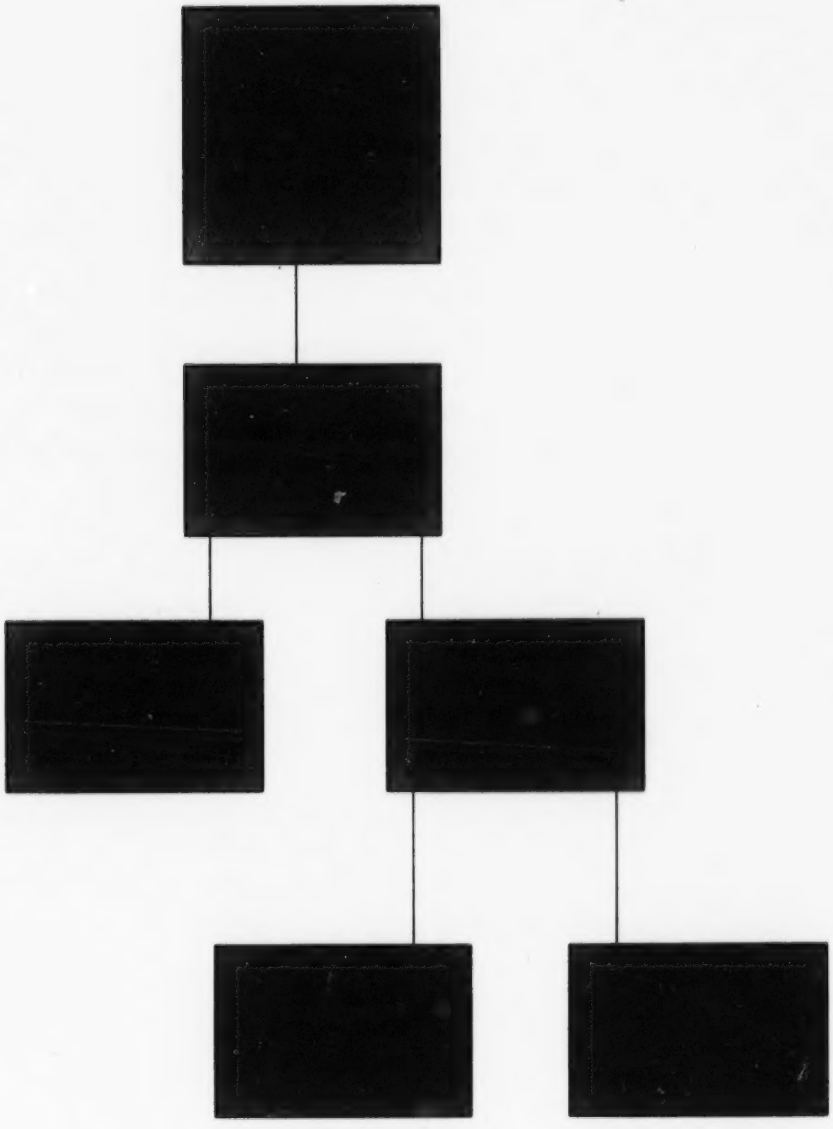
It may be most appropriate for each state to establish its own threshold for defining participation. For example, the research suggests that rural physicians are more likely to participate in Medicaid than are urban physicians, but rural Medicaid practices usually are smaller than those of urban practices (see the appendix). This would suggest that a predominantly rural state might select a lower number of recipients than would a more urban state.

Another question is whether to define the threshold by counting the number of Medicaid recipients served or the number of visits billed to Medicaid. Counting recipients, as was done by Hadley and Perloff, is more accurate, because it avoids the possibility of including a physician who rendered a large volume of services to one patient. On the other hand, changes in recipient identifiers due to shifts in eligibility may overstate the extent of an individual physician's practice. While states currently report the number of recipients by type of service to HCFA, some may need to ensure that client records are not duplicated, thereby increasing computer programming requirements.

Implementation of this approach calls for counting recipients served by individual physicians. Thus recipient and/or claims data must be linked with the provider identifiers—an apparent capability of SURS. Texas and Pennsylvania illustrate two different approaches to this linkage.

- Texas currently links physician numbers with service data in producing the Active Provider Report. By aggregating the individual data, the number of physicians in a geographic area who serve patients above the specified

Figure 2
Monitoring Participation with a Level of Effort Definition



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threshold can be obtained. Distributions of providers, by number of patients served, could be produced simultaneously.

- Pennsylvania's Adjudicated Claims File could be used to produce similar tabulations directly. In this case the Medicaid billing number on the claims file would serve as the unique provider identifier. The recipient's original identifier, which serves as the unique client identifier over time, could be used to identify the number of individual recipients receiving service.

Once basic thresholds have been established and programming has been completed, level of effort monitoring could be done on a routine basis. In addition to providing more accurate measures of participation, the system can yield important by-products for use in ongoing program operations. Standard output also might help to target provider recruitment and relations activities by identifying geographic areas where physicians appear to have unusually small (or large) Medicaid practices.

Monitoring New Patients Served by Participating Providers

The more sophisticated definitions of participation used in the research literature are not easily translatable to ongoing Medicaid monitoring systems. Most state agencies do not have data on the total size of a physician's practice, which would permit the calculation of the proportion that is Medicaid and the tracking of this indicator over time.

One proxy measure would be to monitor changes in the number of new patients seen by participating physicians. If it is assumed that an ongoing acceptance of new patients is an indicator of an unrestricted (or at least less restricted) Medicaid practice, monitoring this variable would enhance efforts to determine the level of participation. In particular, it would help to determine whether newly eligible Medicaid recipients, including pregnant women, newborns, and children, have access to private physician services.

Monitoring changes in the number of new patients requires more complex data manipulation than the preceding approach to monitoring participation. Assuming the availability of unique provider identifiers (as in Texas and Pennsylvania), there are two generic alternatives.

- *Identifying New Patients Using Service Codes.* Standard procedure coding under CPT-4 and/or HCPCS includes some discrete codes related to new patient services (e.g., comprehensive visit for a new patient). Each recipient receiving such a service could be identified, and the percentage of total Medicaid recipients who are new patients calculated.

  This approach has two potential problems. First, it is highly dependent upon the accuracy of service codes and on the coding practice in a state. Some states permit billing of the "comprehensive visit, new patient" code once a year, even if the patient is not new to the physician in that year. Second, all new patients do not receive services that are easily identifiable as "new patient services." This can be particularly true of obstetrical services, since there is no coding difference for the first prenatal visit of a new or an established patient.

- *Identifying New Patients from Recipient-Identifiers.* In a state like Pennsylvania, where recipients have a unique identifier that should be constant over time, it is theoretically possible to track a recipient's use of particular providers and to identify the first time the recipient saw a particular provider. A major constraint is that most claims data systems do not maintain utilization data on line for a number of years. As a result, while it might be theoretically possible to identify new physician patients, this may well be impractical.

  Changes in recipient eligibility status also complicate the calculations. State practices in assigning recipient numbers differ. Some try to maintain a unique recipient number, while others assign a new number when the recipient reestablishes eligibility or moves to another jurisdiction. Thus it may be difficult to distinguish a new patient from an old patient who reestablished eligibility, resulting in an overestimate of new patients served.

States would need to use different methods for tracking new patients, depending upon the nature of their available data. In Texas, which includes new patient visits on the Active Provider Report, the approach based on service codes would appear feasible, but the caveats and limitations associated with service code definitions would need to be clear to the user. In Pennsylvania, which includes the unique (or original) recipient identifier on the claims files, monitoring new patients might be successful.

Monitoring Care Rendered by Organized Providers

This approach adds the services of community health centers, health departments, and other ambulatory providers to provide a more complete picture of access. As discussed at the outset of this report, organized ambulatory care providers—community health centers, health departments, HMOs, and similar providers—render large volumes of care to the Medicaid population. Indeed, in many communities such entities are the primary source of care for these individuals, dwarfing the role of private physicians. Excluding them understates both the size of the Medicaid delivery system and the services available to recipients.

The ability of a state to track the role of organized ambulatory providers depends upon how the state has configured its reimbursement system and Medicaid data. Every state can track participation by HMOs and other prepaid/managed care arrangements, because these entities are reimbursed in a unique manner. Monitoring care in community health centers and health departments, however, may be more difficult since two data elements are essential.

- *A Unique Identifier for the Center.* Where health centers are reimbursed directly by Medicaid (e.g., community and migrant health centers under FQHC), levels of service can be determined and tracked. Where reimbursement is indirect (e.g., local health departments reimbursed through the state), another identifier for the local entity would be required.
- *An Identifier for the Type of Center or Entity.* State approaches to assigning identifiers for health centers and clinics are idiosyncratic. Some states use the same series for private physician groups and ambulatory health centers

and cannot necessarily distinguish between them. In Texas federally qualified health centers have billing numbers that distinguish them from other providers. Pennsylvania's system includes a code for the setting in which a service was rendered (e.g., independent clinics)—information that could be linked to the billing number in order to track care in these systems.

The easiest and most direct method of incorporating organized ambulatory providers into a monitoring system would be to assign a unique "center" identifier to those sites. Such an identifier might be a separate code, or a suffix added to the current provider billing number. The codes could distinguish providers by type (e.g., community health center or health department) if that level of detail were desired. In some states such identifiers already exist, either for clinics generally or for the subset of centers that qualify for reimbursement under FQHC. In other states these identifiers would need to be created. The alternative, which might be attractive to states with systems like that of Pennsylvania, is to use existing information on the site where the service was rendered.

Monitoring Changes in the Availability of Care in a Geographic Area

This community-based approach tracks changes in the volume of specified services received by recipients in a particular geographic area over time. It is intended as an early warning system to highlight potential access problems, hopefully before they become severe. It can be implemented directly from claims data and does not require the use of unique provider identifiers or recipient identifiers. However, this approach does not document provider participation per se.

Since claims data include discrete service codes, changes in the availability of specific types of care can be tracked (see box on Monitoring Access Using a Community-Based Approach). For example, with the Pennsylvania data it is possible to monitor:

- changes in the number of deliveries, by county; and
- changes in the number of visits occurring due to pregnancy or EPSDT referrals, by county.

A more complex approach to monitoring changes in access could be developed by comparing Medicaid capacity with the need for services. There are a number of complex planning methodologies for developing needs assessments that compare current system capacity with required capacity. For purposes of monitoring, however, the primary criteria are that the system be relatively simple to develop and be capable of implementation by state Medicaid programs.

- Current capacity could be estimated from claims data, assuming that services rendered (and billed) equals current Medicaid capacity. This capacity estimate might be refined with provider data, for example, to determine levels of current service per provider.
- Required capacity could be estimated using recipient data and standards for utilization. For prenatal services, the American College of Obstetricians and Gynecologists standards for prenatal visits could be used. For child health

Monitoring Access Using a Community-Based Approach

County	Number of Prenatal Visits to Providers in County			Number of Deliveries at Hospital in County		
	Year 1	Year 2	Percent Change	Year 1	Year 2	Percent Change
County A	500	625	+25%	50	42	-15%
County B	300	200	-33%	30	20	-33%

In county A, billings for prenatal care increased by 25 percent, but the number of deliveries in the county fell by 15 percent. The explanation for this decline might be the closure of a hospital obstetrical unit and reduced availability of care, or the opening of new services in a neighboring county that attract patients from a broader geographic area. In county B, where prenatal visits and deliveries fell at a similar rate, the explanations might include a reduction in the number of Medicaid recipients, expected fluctuations in births in small population areas, or reduced availability of obstetrical providers. The monitoring system would enable the state to identify where changes in availability have occurred, but it would not directly determine the underlying causes.

services, standards for well-child visits and/or average current utilization in the state could be used. State Maternal and Child Health agencies currently develop needs assessments for their block grant applications, and collaborative approaches to establishing need estimates would be appropriate.

- Comparison on a county or other small geographic area basis provides an indicator of the extent to which the current Medicaid capacity meets the need.

Monitoring changes in access in a community clearly poses some methodological issues. For example, there is no inherent reason to assume that the level of currently billed services represents the maximum capacity of an existing set of providers to serve Medicaid patients. Standards on required care are general and do not incorporate measures of differences in need due to health status. The approach might be tested for obstetrical care, because this medical need involves a measurable outcome (a delivery) encompassing a range of other services for which some defined standards do exist (e.g., prenatal care).

Conclusions

The suggested options for monitoring participation and access to care represent a first step in refining approaches to examining physician participation issues. Conceptually these options are relatively simple, though it is likely that their implementation will raise more complex data issues and problems than have been described. The options outlined in this chapter probably are not exhaustive, and states interested in the topic are likely to arrive at other, equally useful methods. The most important consideration is to begin the process and to expand the way in which participation issues are examined so that analyses address the real concern—ensuring adequate access to care for Medicaid recipients.

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Appendix: Recent Literature on Physician Participation and the Factors Influencing Physician Participation in Medicaid

This appendix includes information on physician participation in Medicaid from recent literature. With the growing interest in participation issues during the late 1980s, new data became available that updated and expanded the earlier studies. Six studies are of particular interest.

- Mitchell used national sample survey data to update her studies of participation by private office-based physicians of all types.[26]
- The American Academy of Pediatrics (AAP) conducted a third survey of participation among private pediatricians.[27]
- The American College of Obstetricians and Gynecologists (ACOG) examined services to Medicaid recipients and indigent women.[28]
- Fossett, Perloff et al. used Medicaid data in two studies of participation among obstetrical and pediatric providers in Cook County and in the state of Illinois.[29]
- Long, Settle, and Stuart examined the relationship between Medicaid fee levels and recipients' access to physician services.[30]

Major findings relevant to questions of measuring physician participation are presented below. This discussion is followed by a brief summary of the findings regarding factors that influence physician participation decisions.

Physician Participation in Medicaid

Researchers examining physician participation in Medicaid have looked at variables such as the rate of participation, size and location of practice, and level of reimbursement. All of these factors have implications for recipients' access to care.

Rates of Participation. Most of the research on participation has examined the proportion of physicians serving any Medicaid patients, and recent data provide somewhat conflicting results on trends. Mitchell's study used sample data from the National Opinion Research Center (NORC) nationwide survey of office-based physicians to examine changes in participation between 1977-78 and 1984-85. She found that participation rates had increased during that time.

- Among all physicians, participation increased from 77.3 percent to 83.5 percent.
- The percentage of obstetricians-gynecologists accepting Medicaid patients rose from 64.4 percent to 72.9 percent. Among pediatricians, participation increased from 76.9 percent to 81.4 percent.

The American Academy of Pediatrics, on the other hand, reported a decline in participation among pediatricians. The academy has conducted three surveys of pediatricians, in 1978, 1983, and 1989. The 1978 and 1983 studies were based on a thirteen-state survey of Medicaid participation, while the most recent study used data derived from the academy's Periodic Survey of Fellows. AAP reported that participation among pediatricians fell from 85 percent in 1978 to 81 percent in 1983 to 77 percent in 1989.

ACOG's survey of obstetric-gynecology practice found lower rates of participation among office-based physicians than were reported from the national NORC sample used by Mitchell. Slightly less than 60 percent of solo-practice physicians and physicians in single specialty groups provided care to Medicaid recipients; participation among physicians in multispecialty groups was significantly higher (81 percent).

The Cook County studies by Fossett, Perloff et al. used a different definition of participation. They limited their data to physicians who billed for services to at least twenty Medicaid patients in a year. These studies used Medicaid claims data, not survey responses, to identify the number of participating obstetricians-gynecologists, pediatricians, and family practitioners in the county. The countywide participation rate was 44.9 percent for pediatricians and 50 percent for family practitioners, well below the participation rates found in the preceding surveys. Participation among obstetricians-gynecologists ranged from 31 percent of those located in areas with few Medicaid recipients to 100 percent of physicians located in areas with large numbers of recipients.

Size of Medicaid Practice. Physicians participate in Medicaid to varying degrees, and average caseload size provides an important indicator of the extent of Medicaid practice. Mitchell found a general decrease in the size of Medicaid practice between the late 1970s and mid-1980s, with Medicaid patients falling from 12.1 percent to 9.5 percent of average physician caseloads. The prevalence of large Medicaid practices (more than 30 percent of caseload) also fell from 14.5 percent to 7.5 percent of participating physicians. For obstetricians-gynecologists and pediatricians, the experience did not conform to this overall pattern. Average Medicaid caseloads increased among pediatricians from 14.1 percent to 16.9 percent, a statistically significant increase. Caseloads among obstetricians-gynecologists grew from 8.4 percent to 10.1 percent, but the increase was not statistically significant.

AAP also reported increases in the proportion of pediatricians' patients who are Medicaid recipients, from 15.7 percent to 19.4 percent of total caseload. In the ACOG study 44 percent of the respondents reported that less than 10 percent of their deliveries were for Medicaid patients.

AAP refined its analyses by differentiating the type of Medicaid participation. Basic participation was defined to include all physicians serving any Medicaid patients. Limited participation included those physicians who accept more private pay patients than Medicaid patients. Unrestricted participation included those accepting Medicaid recipients to the same extent as they accept private pay patients. Using these definitions, AAP found that the percentage of pediatricians who limit the size of their Medicaid practice increased from 26 percent in 1978 to 39 percent in 1989. In 1989 56 percent of pediatricians were unrestricted participants in Medicaid.

Location of Practice. Most patients seek basic obstetric and pediatric services near their homes. The Cook County studies examined differences in participation by zip code. These small area analyses documented higher participation rates among physicians practicing in neighborhoods with large numbers of Medicaid recipients. They also found, however, that there were fewer obstetricians-gynecologists and pediatricians located in the inner-city, poorer areas that had more Medicaid recipients.

Despite high participation rates, these areas had significantly fewer physicians per 1,000 recipients.

- Cook County had one participating obstetrician-gynecologist per 1,000 Medicaid enrollees, while suburban counties had approximately three per 1,000. While all obstetricians-gynecologists in the poorest neighborhoods of Chicago participated in Medicaid, this amounted to fewer than twelve physicians for an Aid to Families with Dependent Children/Medicaid population of 136,000.
- While 45 percent of all Cook County pediatricians participated in Medicaid, participation was 62 percent in areas where more than half the children were Medicaid recipients. However, the average number of children per participating pediatrician in these neighborhoods was 7,800, compared with a countywide average of about 1,400.

Reimbursement Levels and Access to Care. Long et al. directly examined the underlying premise of physician reimbursement research—that low reimbursement levels impede patients' access to care. Since the research shows significant relationships between physician payments and participation, they postulated that Medicaid recipients in states with lower reimbursement rates should have lower utilization of ambulatory physician services. They tested their hypothesis using 1975 Medicaid fee levels and data on utilization of all ambulatory physician services from the 1978 Health Interview Survey.

While the hypothesis was logical in light of previous studies, the predicted patterns did not emerge. Medicaid recipients in states with stringent reimbursement policies were as likely to use physician services as those in states with more generous payment levels. Differences in levels of utilization (e.g., numbers of visits) also were insignificant.

While overall utilization of ambulatory services was not sensitive to physician reimbursement levels, reimbursement did affect the site at which services were received. Recipients living in states with more generous reimbursement policies were more likely to obtain care in private physicians' offices, while those in less generous states were more likely to use free-standing clinics and hospital outpatient departments. This led the authors to conclude that "the primary effect of stringent Medicaid physician reimbursement policies is to force substantial numbers of Medicaid eligibles out of physicians' offices and into other sites offering ambulatory care, rather than to reduce access per se."

Factors Influencing Physician Participation in Medicaid

Researchers have used two approaches to examine the factors that influence participation. The "empirical" approach, used by Mitchell in her studies, is based on quantitative data on program and area characteristics. The "attitudinal" approach relies on physician survey responses on the importance of various concerns to physician participation decisions. This approach was used by AAP and ACOG.

Medicaid Payment Levels. Mitchell found that the size of a physician's Medicaid practice was significantly related to Medicaid fee levels. This was particularly

true among urban physicians; a 10 percent increase in fees was estimated to raise the proportion of Medicaid patients by 3.6 percent. Fees were not significantly related to the size of practice for rural physicians.

Both ACOG and AAP asked survey respondents to identify Medicaid issues affecting their decision to participate.

- AAP reported that 71 percent of the pediatricians say low Medicaid fees is "very important" to their decision to participate. However, the analysis showed no significant relationship between this response and the decision to participate. Once participating, however, the level of fees is an extremely significant factor in a physician's decision to restrict the size of his or her Medicaid practice, a finding consistent with Mitchell's results.
- Although ACOG's analysis did not include statistical tests, the reported data suggest conclusions similar to those of the AAP study. Almost 70 percent of physicians not participating in Medicaid cited low reimbursement as a primary factor, but almost 80 percent of those who did participate also rated low reimbursement as a significant problem.

Medicaid Program Administration. The studies used different measures to explore the effect of administrative issues and they arrive at different conclusions.

- Mitchell examined the effect of limitations and prior authorization requirements and found no significant relationship between restrictions imposed by the state Medicaid agency and participation.
- AAP found that physician views regarding the burden imposed by payment delays and paperwork are significantly related to the decision to participate and the extent of participation. The academy also asked physicians whether they thought the regulations are too complex or interfere with quality care. Both are significantly related to the dichotomous decision to participate. Both also are related to the extent of participation, but views regarding the effect of regulations on quality are less important.

Area Characteristics. Mitchell found higher participation rates among physicians practicing in counties with more Medicaid-eligibles, similar to AAP's finding that physicians reporting few Medicaid recipients in their area are less likely to participate. As has been found in previous studies, Mitchell found that Medicaid participation is lower in urban areas with high physician-population ratios. She also found high participation rates in geographic areas with higher practice costs.

Attitudes. Physician views regarding Medicaid recipients are the most difficult component of the participation decision to examine. AAP asked for physician perceptions on "problems," such as patients breaking appointments or language barriers, and found no significant relationship between these survey responses and participation. If the view that regulations impede quality of care is also regarded as an attitudinal measure, it is worth noting that physicians ranking this as a considerable problem are less likely to participate, or to participate on an unrestricted basis.

ACOG's survey found that physicians who participate are more likely to cite problems related to patient characteristics than those who do not participate. Thirty-six

percent of participating obstetricians-gynecologists said that Medicaid patients are from a different socioeconomic group, compared with 19 percent of nonparticipants. About one-third felt that Medicaid patients are medically high risk, compared with 20 percent of the nonparticipating physicians. ACOG also asked about malpractice-related issues; 45 percent of the participating obstetricians-gynecologists and 41 percent of nonparticipants said they believe Medicaid patients sue more.

Although they did not analyze the relationship between fees and participation directly, Fossett, Perloff et al. concluded that since most physicians in low-income areas already participate in Medicaid, raising fees is not likely to increase participation significantly. They suggested that inadequate physician participation stems as much from physician practice location and residential segregation as from Medicaid policies. They also suggested that improving access calls for increased reliance on community health centers, health departments, and similar ambulatory care providers.

Endnotes

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8. Beth Yudkowsky, Jenifer Cartland, and Samuel Flint, "Pediatrician Participation in Medicaid: 1978 to 1989," *Pediatrics*, vol. 85, no. 4 (April 1990).
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14. See, for example, Paul Buescher and Nancy Ward, "A Comparison of Low Birthweight among Medicaid Patients of Public Health Departments and Other Providers of Prenatal Care in North Carolina and Kentucky," *Public Health Reports*, vol. 107, no. 1 (January-February 1992), pp. 54-59.
15. Lewis-Idema.
16. Omnibus Budget Reconciliation Act of 1990, Section 4752(a), Use of Unique Physician Identifiers.
17. U.S. Department of Health and Human Services, Health Care Financing Administration, *State Medicaid Manual*, Part 4 - Services, Section 4280 (Transmittal No. 57, January 1992).
18. U.S. Department of Health and Human Services, Health Care Financing Administration, *State Medicaid Manual*, Part 11, Chapter 3, Section 11335.
19. Lewis-Idema.
20. Texas Research League.

21. Deborah Lewis-Idema, *Factors Which Influence Medicaid Reimbursements to Community and Migrant Health Centers* (Washington, D.C.: National Association of Community Health Centers, 1989).

22. OBRA-90 requires that HMOs maintain some encounter-level data. The nature of data reported to states is unclear at present.

23. Of ten states known to include unique physician identifiers in their systems, six appear to have multiple rendering physician numbers. Some of these have a means of linking these numbers to one physician, while others do not. (National Governors' Association, *State Coverage of Pregnant Women and Children*, July 1991).

24. Hadley.

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30. Long et al.

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